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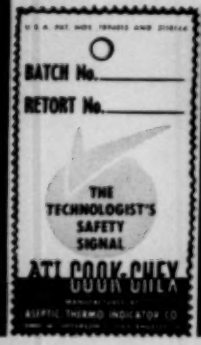

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A three weeks' special course in food technology, from June 12 to June 30, a feature of the 1950 Summer Session at the Massachusetts Institute of Technology, has been announced by Professor Walter H. Gale, in charge of M. I. T. summer session activities.

To be given under the direction of Dr. Bernard E. Proctor, professor of food technology at the Institute, the intensive course will give particular emphasis to recent developments in food manufacture and control. In addition to lectures, demonstrations, and conferences at M. I. T., there will be opportunities for group visits to representative food industries throughout greater Boston.

The course, intended principally for those having some knowledge of the basic sciences pertinent to food technology, should prove valuable to advanced students in other sciences as well as to executives and employees in food industries, according to Dr. Proctor.

The following subjects are among those on which the course will include fundamental material: economics and statistics of food supplies; food cost accounting and business law; food bacteriology, sanitation, and fermentations; food chemistry and nutrition; materials handling; food control instrumentation; flavor and food acceptance; and food sterilization by electronics. Detailed studies of bakery operations, canning, food freezing, meat packing, milling, and yeast operations will be among several special food processing reports.

In addition to Professor Proctor, the following M. I. T. faculty members will take an active part in the course: Professor William L. Campbell, head of the Department of Food Technology; Dr. William C. Bauer, assistant professor of food technology; Dr. Cecil G. Dunn, associate professor of industrial microbiology; Dr. Robert S. Harris, professor of biochemistry of nutrition; and Dr. Ernest E. Lockhart, assistant professor of food chemistry.

Only a limited enrollment will be accepted, according to Professor Proctor, and preference will be given to those applicants having a background of technical or executive experience in food industries, faculty members of other schools, government workers in food control or nutrition, and advanced students in chemistry and engineering. Letters of application, giving the applicant's experience and background, should be sent to Professor Gale at Room 3-107, M. I. T., Cambridge 39.

Tuition for the three-week course will be $100; academic credit will be given for satisfactory completion of the course only to those who elect to take a final examination.

The special course in food technology is part of a broad program of summer activities at M. I. T., designed to make the Institute's special facilities available to technical and scientific personnel not able to participate in the Institute's regular academic work. All students will have full use of the Institute's dormitory, library, and recreational facilities at nominal cost.

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Selected Abstracts

ANALYTICAL METHODS

54J. A comparative study of ten electrical meters for determining moisture content of wheat.

HLYNKA, I., MARTENS, V., AND ANDERSON, J. A. *Canadian J. Res., 27F,* 382-97 (1949).

Ten electrical moisture meters were tested with 159 samples of Canadian hard red spring wheat, of Grades 1, 2, 3, and 4 Northern, representing a moisture range of 11 to 17%. The two-stage vacuum oven and Brown-Duvel methods were used as bases of comparison. Regression equations, standard errors of estimate, and data on temperature effects are reported. The standard error of estimate of vacuum oven results was 0.15% for the Brown-Duvel method, 0.23% for the Tag-Heppenstall meter, and 0.28% for the Universal meter. Other meters had higher errors of estimate.

55J. Calcium in high-purity sodium salts.

RYNASIEWICZ, J., AND POLLEY, M. E. *Anal. Chem., 21,* 1398-1400 (1949).

As little as 0.1 mg. of calcium can be determined in high-purity NaCl or $NaNO_3$ using 8-hydroxy quinoline at pH 9.5-10.0. This is followed by an oxalate precipitation and titration with 0.01% N $KMnO_4$. This work resulted from checking work of Shuman and Berry who determined that a minimum of 3 mg. of calcium in 20 gm. of salt could be determined by direct precipitation of calcium by oxalate. The authors confirm this value.

BIOLOGICAL SCIENCES

MICROBIOLOGY

56J. Method and device for indicating spoilage.

CLARK, J., D'A. 2,485,566, Oct. 25, 1949.

The method of indicating that a product has been under temperature conditions favoring an appreciable increase of bacteria in or resulting in an appreciable deterioration of such product, comprising placing adjacent to the product a sealed transparent cover containing cold-resistant substantially non-pathogenic bacteria and a simple visual indicator responsive to pH change, which indicator assumes a marked change in appearance to the unaided eye after the ensemble has been subjected to such temperature conditions.

57J. The examination of whole canned foods. I. Examination of swells in low-acid canned foods.

MOLLER, O., AND JUL, M. *Fiskeriminist. Forsogslab. (Copenhagen) Med. No. 81* (1948); *Food Sci. Abst., 21,* 289, No. 1202 (1949).

When examining swells in cans of low-acid food, in order to ascertain whether the blowing was due to leakage or under processing, blown and unblown cans from the same batch should be tested. At least 10 samples should be taken from each group, and the closure of the cans as well as the bacteriol. condition of the contents should be examined. The closure of the cans was tested by (1) measuring the length of the longest (vertical) seam and the variation of this length, (2) measuring the air-tightness of the can, and (3) cutting a triangular section through the seam and stripping the seam to detect faults in the closing process. Examination of the bacterial flora of the can contents was supplemented by a culture test. By this procedure, the cause of the swelling could sometimes be established with certainty. In other cases, where there was doubt, examination of a smaller number of cans or an examination either of the bacteriol. condition or of the can seams alone might lead to erroneous conclusions. Therefore, the cans should be thoroughly tested, as described above. Results of examination of canned prawns, mackerel or tunny in tomato sauce, and mushrooms in different types of can are tabulated.

NUTRITION

58J. The effect of a seafood diet on the red cell count hemoglobin value, and hematocrit of human blood.

WILSON, S. J. *Fishery Leaflet 334,* U. S. Fish and Wildlife Service USDI; *Comm. Fish. Abst., 2,* 11, Sept., 1949.

A diet supplying the major proportion of protein requirement with seafood will maintain the red cell count, volume of packed cells (hematocrit) and hemoglobin content at as high a level as will a free choice diet containing an equivalent amount of protein in the form of meat.

59J. Distribution and nutritive value of the nitrogenous substances in the potato.

CHICK, H., AND SLACK, E. B. *Biochem. J., 45,* 211-21 (1949).

In the variety of potato studied, King Edward grown in the Fenlands, the total nitrogen varied from 1.7-2% on dry wt.; the proportion present as protein varied from about 40 to 50% and was slightly lowered when the potatoes were stored. In the expressed juice of the raw potatoes about 30% of the nitrogen was protein nitrogen: of the non-protein nitrogen about one-fifth was present in free amino-acids, two-fifths in amides and two-fifths in nitrogenous bases. After extraction of the residual pulp with salt solution and alkali, 7-10% of the total nitrogen remained unextracted. At least two soluble proteins were detected in the press juice after deposition of the particles of the starch; one (α-globulin) precipitated from the diluted sap on standing at pH 4, the other (β-globulin) on boiling the filtrate therefrom. In one specimen of freshly dug potatoes the ratio of α- to β- globulin was about 1/2: in a sample of stored potatoes it was about 2/1. Both the nutritive value, judged by capacity to support growth in weanling rats, of the nitrogen in the whole steamed potato and the economy of its utilization, were less than those of the nitrogen in potatoes deprived of the skin and still lower than those of the nitrogen in peeled potatoes from which a layer of 2 mm. thickness had been removed.

The growth-promoting value of the potato nitrogen was usually found to be diminished after storage; the extent of deterioration depended on the conditions, being least after storage at 5°. The ratio of protein to non-protein nitrogen was also lowered after storage.

FOOD PRODUCTS

BAKING AND BAKERY PRODUCTS

60J. Effect of surface-active agents on the softness and rate of staling of bread.

EDELMANN, E. C., AND CATHCART, W. H. *Cereal. Chem., 26,* 345-58 (1949).

The relative effectiveness in bread of 24 different surface-active agents as emulsifiers or "softeners" was determined. The results of compressibility tests and organoleptic examinations made on bread showed that five of the surface-active agents were more effective than the others. They were glyceryl monostearate, glyceryl oleostearate, polyoxyethylene stearate, sorbitan monostearate, and polyoxyethylene sorbitan monostearate.

61J. Packaged food composition.

ARMSTRONG, L., AND WILLOUGHBY, L. B. Assignors to Ballard & Ballard Company, 2,478,618, Aug. 9, 1949.

The method of preparing a dough for distribution which comprises incorporating in the dough at least one of the slow-acting baking acids from the group consisting of sodium acid pyrophosphate and glucono delta lactone in amount greater than that equivalent to 0.775% of CO_2 released thereby from the carbonate (based on the weight of the flour in dough) and a baking carbonate in amount at least equivalent to 0.775% CO_2, packaging the dough in a container adapted to limit expansion of the dough, subjecting the packaged dough to conditions adapted to produced relatively rapid evolution of gas within the dough, and substantially terminating such relatively rapid evolution of gas when the dough has expanded sufficiently to be restrained by the container and when a substantial unexhausted reserve of gas-releasing baking compound and of slow-acting baking acid remains in the dough.

CEREALS AND GRAINS

62J. Production of gun-puffed ready-to-eat food product.

THOMPSON, J. J., AND PLENTY, W. P. Assignors to Kellogg Company, 2,478,438, Aug. 9, 1949.

A process of making a ready-to-eat food product of the breakfast cereal type, which comprises rolling an admixture of at least two different cooked coarse particles of the class cereals and legumes to generally coherent ribbon form, to blend and amalgamate the cooked particles, masticating the rolled material with added moisture to form a plastic mass, shaping the mass to particles of desired size and drying the particles, and thereafter explosively puffing the dried particles.

63J. Prepared food article and method of preparing.

SPENCER, P. L. Assignor to Raytheon Manuf., 2,480,679, Aug. 30, 1949.

A method of preparing popcorn for consumption comprising exposing a husked but unshelled ear of popcorn to electromagnetic wave energy for a time sufficient to evert by explosion at least some of the kernels of the ear.

COFFEE AND CHOCOLATE PRODUCTS

64J. Decaffeinated soluble coffee.

ORNFELT, J. Assignor to American Home Foods, 2,472,121, June 7, 1949.

The process of producing soluble decaffeinated coffee, which comprises forming an aqueous extract of ground roasted coffee beans which contains at least about 40% by weight of soluble coffee solids comprising water-soluble and water-dispersible coffee constituents of beverage value, extracting caffeine therefrom by contact of the aqueous extract with a water-immiscible organic solvent for caffeine, effecting contact of aqueous extract and solvent until at least about 90% by weight of the caffeine has been removed from the aqueous extract, separating the decaffeinated aqueous extract from the caffeine-laden solvent, and freeing of residual organic solvent the aqueous coffee extract decaffeinated by contact with the organic solvent to produce soluble decaffeinated coffee.

65J. Chocolate products.

KEMPF, N. W. Assignors to General Foods Corp., 2,480,935, Sept. 6, 1949.

In a process of making a solidified sweetened chocolate which is non-sticky at temperatures above the m.p. of the cocoa butter from a hot plastic chocolate mix including crystallizable sugar, the steps of forming the plastic mix into the desired shape, then applying moisture to the surface of the mix while still in a hot plastic state to cause some of the sugar in the mix to dissolve in the moisture and form a sugar syrup film on the surface, and then drying the film and cooling to solidify the mix with a thin skin of crystallized sugar bonded to its surface.

DAIRY PRODUCTS

66J. Citric acid esters in cheese.

GOODING, C. M., NEAL, R. H., AND VAHLTEICH, H. W. Assignors to The Best Foods, Inc., 2,485,637, Oct. 25, 1949.

A cheese product comprising butter fat water, water- soluble non-fat milk solids, milk protein and a member of the class consisting of monoalkyl esters of citric acid, monoalkylene esters of citric acid, dialkyl esters of citric acid and dialkylene esters of citric acid.

67J. Stabilization of butter.

MUELLER, W. S. Assignor to the United States of America, 2,472,119, June 7, 1949.

A composition of matter comprising a butter product, and an antioxidative rancidity-retarding and decolorization-retarding stabilizing agent comprising tetrachloro-para-benzoquinone.

DEHYDRATED FOOD

68J. Process of preparing dehydrated mashed potatoes.

KAUFMAN, C. W., BURGESS, H. M., AND HOLLIS, JR., F. Assignors to General Foods Corp., 2,481,122, Sept. 6, 1949.

A process of preparing dehydrated mashed potatoes which comprises cooking the potatoes and draining off any free liquid, whipping the cooked potatoes in the absence of free liquid to thoroughly dissociate and intimately mix the cellular material and form an aerated mash consisting of potato substance having mealy uniform texture with the potato starch and protein homogeneously distributed throughout, forming the mash into filaments, and drying said filaments by circulating air at a temperature within the approximate limits of 180° F. and 280° F. there-through at a rate of the order of 150-300 linear feet per min., thereby setting the filaments substantially in their predried size and producing tubular porous dried shreds.

69J. Starch coating for dehydrated carrots.

West. Can. Pack., 41, 27, Oct., 1949.

A 2.5% solution of laundry starch was sprayed on the dice as they left the blancher.

	Loss of Color (6 mo.)
1—unblanched	91.8
2—blanched	70.2
3—blanched + sulfited	74.5
4—blanched + starch	36.4

Flavor followed loss of color (as carotene).

FATS AND OILS

70J. The effect of added water and antioxidants on the keeping quality of lard.

LIPS, H. J. *Canadian J. Res., 27F,* 373-81 (1949).

Moisture alone had little detrimental effect on lard storage life (time at 90° F. to attain a peroxide oxygen value of 10 ml. of 0.002 N thiosulphate per gm.) except at the highest levels of incorporation (up to 12.8%) but citric acid, lecithin, and α-tocopherol had more stabilizing action in dry lard than in lard containing water. Gum guaiac gave the greatest increase in storage life and citric acid the least. The stabilization varied with the original quality of the lards tested (two wet rendered, two dry rendered and two composite lards) but no segregation of the results according to wet and dry rendering of these lards was possible.

71J. Butylated hydroxyanisole as an antioxidant for animal fats.

KRAYBILL, H. R. et al. *J. Am. Oil Chem. Soc., 26,* 449-53 (1949).

Butlylated hydroxyanisole was found to be most effective as an antioxidant when mixed with propylgallate or hydroquinone and citric acids (AMIF-72). Toxicological tests show material to be safe for human consumption, (use permitted by Meat Inspection Division).

72J. Soybean oil composition and method of preparing same.

NEAL, R. H., GOODING, C. M., AND VAHLTEICH, H. W. Assignors to The Best Foods, Inc., 2,485,631, Oct. 25, 1949.

A composition of matter comprising a significant amount of a deodorized soya bean oil having incorporated therein, as essentially the sole added anti-oxidant and anti-flavor reversion agent, at least one monoester of citric acid, one of said monoesters present being monoisopropyl citrate.

73J. Soybean oil composition and method of preparing same.

GOODING, C. M., VAHLTEICH, H. W., AND NEAL, R. H. Assignors to The Best Foods, Inc., 2,485,633, Oct. 25, 1949.

A food product comprising a significant amount of soya bean oil having incorporated therein a monoester of citric acid, the amount of said monoester being not more than 0.1% of soya bean oil by weight.

FROZEN FOOD

74J. On the freezing and frozen storage of cake.

MILLER, C., AND BEATTIE, I. E. *J. Home Econ., 41,* 463-4 (1949).

Chocolate cakes and cake batters were prepared under standardized conditions, frozen, and then stored in home freezer at 0° F. After 2- and 14-week storage periods, the average palatability ratings did not differ appreciably from the average ratings of freshly baked cakes. The volume of the baked cakes decreased markedly during storage, the longer the storage period, the greater the decrease. The thawed product, however, was rated only slightly lower than the other cakes. It was concluded that chocolate cake could be frozen as baked cake or batter and stored successfully for short periods without serious deleterious effect on acceptability.

(Continued on page 9 following technical papers)

ALUMINUM FOIL FOR FOOD PROTECTION

A statement by the foremost experts in foil packaging...world's largest producers of Aluminum Foil: Reynolds Metals Company

The primary advantage of aluminum foil for food protection is its high resistance to Moisture-Vapor Transmission—either to prevent dehydration, as in frozen foods, or to exclude moisture as from dehydrated soups. A similarly high degree of impermeability to volatile oils and odors is an important advantage to many products. Exclusion of light rays may be a benefit in some cases.

Typical packages using Reyseal

These advantages, recognized by food technologists, can *always* be achieved in maximum degree by a sufficient thickness of aluminum foil, providing the package can be adequately closed or sealed. The Reynolds Metals Company is foremost in the development of all-aluminum packages—including the versatile Reynolds Pak, a one-piece semi-rigid tray with crimp-on lid.

Practically, however, the factors of expense, availability for automatic wrapping and special sealing requirements often make desirable combinations of aluminum foil with other materials.

Hence there arose the wide field of laminated-foil packagings, in which Reynolds has pioneered. These include aluminum foil laminated to various types of paper and plastic film. "Reyseal" is the trade name given to only one broad classification—an aluminum foil and paper structure which utilizes the wax within the sheet to effect a heat seal at the point at which heat is applied.

Reynolds technical laboratories make elaborate tests to determine the values of different foil and foil-laminated packagings, as compared with other materials, for particular food products. The following is a typical test case:

PRODUCT: A dehydrated soup.

CONDITIONS: Four weeks at 100° F., 90% relative humidity.

MATERIALS: 1. Carton overwrapped with Reyseal "O" and waxed paper applied in a single wrapping operation.
2. Carton overwrap: Reyseal "502."
3. Carton made from Reyseal board.
4. Non-foil carton and liner.

RESULTS: Packages 1, 2 and 3 maintained edibility, good odor, flavor and appearance as long as three weeks, whereas product in package 4 lost flavor and acquired musty odor and taste within a week. Package 1 provided 18 times more protection from moisture gain than package 4; package 2 provided 12 times more protection; package 3, 4 times more.

A commercial use of Reynolds Pak

RECOMMENDATION: Package 1.

Food product packers are invited to submit samples for testing. Address requests to **Reynolds Metals Company,** Richmond 19, Va.

REYNOLDS ALUMINUM

Abstracts

(Continued from page 7 preceding technical papers)

75J. Effect of aging before freezing on beef palatability.
McCoy, D. C. et al. *Refrig. Eng., 57,* 971-4 (1949).

Dehydration losses, drip losses, cooking losses, and total yield do not correlate with the methods of freezing or methods of aging. Flavor of all beef used in this work, regardless of its treatment prior to freezing or the manner in which it was frozen or held in frozen storage, began to deteriorate rather rapidly after a storage period of six months. The flavor of aged beef regardless of the method of aging deteriorates more rapidly than unaged beef in frozen storage. There was some indication that frozen beef became less tender during storage. This change is more apparent in the roasts than in the steaks, possibly due to cooking methods. Differences in the tenderness level of all types of aged and unaged beef were not affected by freezing. However, the difference in tenderness between aged and unaged beef became less with increased frozen storage time. Aging in the presence of ultraviolet light results in no changes in either taste or tenderness of frozen beef which did not occur in the absence of ultraviolet light. The methods of freezing beef used in these tests were not factors contributing to flavor, taste, and tenderness changes which occur in frozen storage.

FRUIT AND VEGETABLES

76J. Storage of fresh citrus.
Refrig. Res. Found., 49-9, *5,* Sept. 20, 1949.

Definite recommendations can now be made, based on two years of work by leaders of this project. Texas and Florida Valencias harvested before they are overmature, wrap-packed in standard boxes and held at 32° F. with r.h. of 85% can be expected to keep for as long as 3 to 4 months. Decay has not averaged more than 5% for this period and flavor has been well preserved. Use without excessive delay following removal from cold storage is necessary. Frequent inspection is advisable. Rind defects vs. decay has been a problem for lemons, and recent commercial experience has indicated that the higher temperature (45°-60° F.) that avoids rind injury is not always to be preferred over 32° F., which protects against decay but does permit development of rind defects.

77J. The Krebser process.
Faure, A., and Chouard, M. *Rev. gen. Froid, 25,* 495 (1948); *Food Sci. Abst., 21,* 159, No. 619 (1949).

The "Krebser" process, is based on the properties of the moss *Hyphum triquetrum,* and was developed and patented in Switzerland about 1942. The living moss (1) can regulate, within certain limits, the humidity of the atmosphere in the store, (2) can absorb ethylene and aldehydes, and (3) under certain conditions, can provide some cooling, owing to its large evaporation surface. The paper then deals with the technic of the "Krebser" process for the storage of fruit, showing by means of a diagram the principle of a Krebser installation, including the system of ventilation. It gives an account of experiments carried out in France to investigate the actual ability of the moss to regulate humidity, cool the air, and absorb volatile products (ethyl aldehyde, ethylene, and ammonia or ammoniacal vapours) in fruit storage rooms. The living moss also appears to have a retarding effect on the growth of fungi (e.g. Penicillia) which attack fruit. The Krebser process can be used either in fruit cellars or in mechanically refrigerated cold stores.

78J. The phytotoxicity of D. D. T. and of benzene hexachloride.
Stocker, R. I. *Ann. appl. Biol., 35,* 110 (1948); *Food Sci. Abst., 21,* 110, No. 411 (1949).

Results of spraying tests are reported. The flavor of potatoes, peas, carrots, beetroot, marrows, cauliflower and lettuce were tainted by a spray compounded from benzene hexachloride dispersible powder; apples and plums so treated developed a taint after cooking.

PECTIN—JAMS AND JELLIES

79J. Grading pectin in sugar jellies.
Bender, W. A. *Anal. Chem., 21,* 408-14 (1949).

The method is founded on the straight-line relation between the strength of a jelly and the pectin concentration, when the strength is measured as the breaking point of slices of jelly. The measurements are made with the Tarr-Baker gelometer, calibrated to obtain precise results. The method is general in that the suggested standard may be changed, or grades may be determined under any combination of the adjustable factors of jelly making.

80J. The pectic enzymes of the mold Byssochlamys fulva.
Beaven, G. H., and Brown, F. *Biochem. J., 45,* 221-3 (1949).

The enzyme system produced by the mold *Byssochlamys fulva* has been examined. Evidence has been found for the presence of protopectinase and a disaggregating enzyme which reduces the molecular size of pectin without the production of galacturonic acid. The production by a fungus of a pectinase type of enzyme which is free from pectin methoxylase has not been reported hitherto.

ELASTICITY OF CONNECTIVE TISSUE AND QUICK DETERMINATION OF CONNECTIVE TISSUE IN MEAT

Abstract by Maurice E. Stansby of the Fishery Technological Laboratory, Fish and Wildlife Service, Seattle, Washington.
Article by E .C. Bate Smith published in Report of the Food Investigation Board (Great Britain) for the Year 1939, 7 (1949).

Experiments on the elasticity of collagen fibres (a factor related to increase in tenderness of meat during aging) are described and the data treated mathematically. The elastic extension and recovery do not follow Hooke's law; rather, they vary according to the square root of the applied load. Elasticity of collagen fibres increases by as much as 60 percent during storage and this increase is related to an increase in tenderness.

In extracting soluble proteins from muscle, the shortest extraction period is obtained by using very finely ground muscle. Best grinding of muscle is obtained if it is first dried. Ordinary air drying gives a horny mass from which much of the protein can not be extracted. A high-vacuum drying technic has been devised which yields a dried muscle powder of such high degree of subdivision that extremely rapid extraction of soluble protein is attained and results are identical with those obtained on fresh, undried muscle. The muscle is minced, mixed, and a thin layer is spread on a watch glass over phosphorus pentoxide in a vacuum desiccator, evacuated with a high-vacuum pump and the muscle dried to constant weight. It is then ground to a fine powder in a coffee mill and 1-gram samples of the thoroughly mixed powder are shaken with 150 ml. extractant for one hour in a centrifuge tube. The solid is centrifuged and shaken again with fresh extractant. The extracts are combined and protein nitrogen determined on an aliquot.

Connective tissue nitrogen is calculated as the difference between total protein nitrogen and hydrochloric acid extracted nitrogen (determined as above).—*Commercial Fisheries Abstracts,* December 1949.

News of the Institute

HONORS

Thomas M. Rector, Appert Medalist

Mr. Charles L. Smith, Chairman of the Nicholas Appert Award Jury of the Chicago Section of the Institute of Food Technologists has announced that Mr. Thomas M. Rector, Vice President of General Foods Corporation, New York City, and Chairman of the Panel on Food, Committee on Equipment and Materials, Research and Development Board, Washington, D. C., has been selected as the Nicholas Appert Medalist for 1950 and will be awarded the medal at the Decennial Conference of the Institute at the annual banquet on the evening of May 23rd, 1950, at the Edgewater Beach Hotel in Chicago.

Regional Section News

SOUTHERN CALIFORNIA SECTION

The January meeting of the Section was held as a luncheon at Hostess House, Helms Bakery in Los Angeles. Earl B. Cox, Vice President, addressed the luncheon group on operations of the bakery. Following the luncheon, there was a tour of the bakery under the auspices of Jane Sterling, director of Helms Consumer Service.

The fourth annual all-day conference of the Section was held on February 17th at the Mayfair Hotel in Los Angeles. The general theme of the meeting was "New Product Development," speakers being M. J. Copley, Director of the Western Regional Laboratory of the Bureau of Agricultural and Industrial Chemistry, Albany, Calif.; Sven Lassen, Director of Research, Van Camps Seafood Co.; E. W. Sann, Director of Sales, Industrial Chemicals Dept., Atlas Powder Co.; Paul F. Sharp, Director California Agricultural Experiment Station, University of California, Berkeley. The dinner speaker was Walter S. Jensen, manager of the Railroad Perishable Inspection Agency, New York City, whose topic was "A Scientific Approach to Food Transportation."

Through the courtesy of the California and Hawaiian Sugar Refining Corp. Ltd., a colored movie "Kopa-A" was viewed by members of the Section.

NORTHERN CALIFORNIA SECTION

This Section's "Hornblower" is going to have another toot. The future of the "Hornblower" has been given into the hands of the San Jose contingent of the Section. Originally established to bally-hoo the National Convention held in California in 1949, the "Hornblower" served its purpose well under the leadership of Walt Richert. The "Hornblower" has not stopped blowing, and it is hoped that the publication will become a desirable and permanent member of the Northern Section.

PHILADELPHIA SECTION

The January meeting was held at Brewery Tavern on the 19th. Following the dinner, J. J. Willaman, Chief of Division of Biochemistry, Eastern Regional Research Laboratory, Bureau of Agricultural and Industrial Chemistry, spoke on "Enzymes: Pure and Simple."

CHICAGO SECTION

More About 1950 Conference. Dr. Lloyd A. Hall, National Program Chairman for the 1950 Decennial IFT Conference to be held at the Edgewater Beach Hotel in Chicago beginning May 21st, has really selected a bevy of outstanding speakers. Look over the list. There will be Martin H. Kennelly, Mayor of Chicago; Dr. Ernest H. Volweiler, Executive Vice President, Abbott Laboratories and President of the American Chemical Society; Guy E. Reed, Vice President, Harris Trust and Savings Bank, Chicago; Dr. Henry T. Heald, President, Illinois Institute Technology; Dr. E. B. Hart, University of Wisconsin; Dr. C. G. King, Nutrition Foundation; Allan B. Kline, President, American Farm Bureau; Dr. Leverett Lyon, Chief Executive Officer, Chicago Association of Commerce and Industry, formerly Vice President, of Brookings Institute.

Dr. Carl R. Fellers, President of IFT will give the President's message.

One of the interesting and unusual features of the Conference is the Executives' Luncheon Tuesday, May 23rd., the purpose of which is the creation of a broader appreciation of the significant role food technologists have already assumed and are prepared to extend in the future development of food industries and national economy. Invitations for the luncheon will be extended to outstanding leaders in finance and industry.

The ladies have not been forgotten. There will be a social hour on Sunday May 21st; there will be a sight seeing tour of the city, Tribune plant, Sears, Roebuck, Palmer House, meat packing and ice cream plants, candy kitchen, Marshall Field (includes luncheon and fashion show), and radio programs.

Details of the Conference were published in the February issue of Food Technology.

OHIO VALLEY SECTION

The Section met in an all-day session on February 11th, starting with an Executive Committee meeting. The afternoon technical program consisted of the following papers:

"Flavor Evaluation of Processed Fruits and Vegetables Sprayed with Organic Pesticides." W. A. Gould, Dorothy Culler and Margaret Dunnigan, Dept. Horticulture.

"Statistical Study of Taste Panel Data." Fred Krantz, W. A. Gould and Margaret Dunnigan, Dept. Horticulture.

"Taste Evaluation of Fruit Juice Blends and Concentrates." H. D. Brown and Richard Barton, Dept. Horticulture.

"Some Biochemical Changes Related to the Flavor of Cheddar Cheese." W. J. Harper, Dept. Dairy Technology.

"Studies on the Nature of Tenderness in Fresh Meat." L. E. Kunkle and Robert Deans (Dept. Animal Husbandry), and F. E. Deatherage, S. A. Husaini and H. D. Draudt (Dept. of Agriculture Biochemistry).

"The Effect of Excess Lime Treatment on Certain Bacteria that may be Present in Water Supplies." H. H. Weiser and Thelma Rheins (Dept. Bacteriology); M. W. Riehl

and F. H. Waring (Ohio Dept. Health); C. P. Hoover (Columbus Water Purification Plant).

"Recent Developments in Evaporation Engineering." Joseph A. Cross, Majonnier Bros. Co.

During the afternoon there was a tea with the School of Home Economics and Professor Inez Prudent.

At 6:00 P. M., dinner at the Faculty Club and Dean Leo L. Rummell, College of Agriculture, Ohio State University, and Director, Ohio Agricultural Experiment Station as speaker of the evening.

NEW YORK SECTION

A dinner meeting was held on February 15th which included a "Forum on Food Laws." Those participating in the forum were Thomas Rector, Vice President, General Foods; Charles W. Crawford, Deputy Commissioner of Food and Drug Administration, and Charles W. Dunn, President of the Food Law Institute.

PERSONNEL

E. A. Beavens and R. J. McColloch appeared with Rolly Langley on a television program sponsored by IFT on Channel 9, KFI-TV, Los Angeles on the afternoon of December 15th.

Clifford L. Bedford, formerly Assistant Professor at the State College of Washington, Pullman, has been appointed food technologist in the Department of Horticulture, Michigan State College.

L. E. Clifcorn has been elected Chairman of the Division of Agricultural and Food Chemistry, American Chemical Society, succeeding Carl R. Fellers.

Charles W. Kaufman, Director of Research and Development, General Foods Corp., with his family are in England for a visit of some months. Dr. Kaufman is combining business and pleasure, but it's going to be all pleasure for his family.

Arie J. Haagen-Smit, Professor of Bio-organic Chemistry, California Institute of Technology, will be presented with the Fritzsche Award, sponsored by Fritsche Brothers, Inc., essential oils and aromatic chemicals, New York City, at the spring meeting of the American Chemical Society.

Russell S. McBride now has associated with him in his consulting chemical engineering practice, John T. Cox, Jr., who has resigned as deputy director of the Office of Rubber Reserve, Reconstruction Finance Corporation.

Roy C. Newton, past president of IFT, commutes from Chicago in his own Cub Airplane to his farm at Three Rivers, Michigan. If you don't believe, it, see *This Week Magazine* for January 15th for all the details, along with photos of Dr. and Mrs. Newton and recipes for Mrs. Newton's "Crumb Cake," "Roll Cookies" and "Sour Cream Spice." The whole story is in a special article by Clemetine Paddleford, Food Editor for *This Week*.

On December 10, 1949, Everett Meschter and Doris Winder were married at the Carmel Presbyterian Church, Glenside, Penn. The bride and groom spent their honeymoon in Bermuda and the Bahamas.

George P. Walton has retired after 44 years of a distinguished career with the Federal Government. He started his service in the Patent Office in 1905, transferring two years later to the old Bureau of Chemistry then headed by Harvey W. Wiley, father of the Food and Drug Act. Mr. Walton's 42 years in the U. S. Department of Agriculture were marked by research in a wide variety of agricultural research, and during the past 10 years he spent most of his time on problems dealing with honey. He plans to live in Washington in the home on 33rd Street, N. W. that he and Mrs. Walton established when they were married in 1912.

BLANCHING OYSTERS BOOMS DEMAND

Abstract by Roy C. Stevens of Scottish Seaweed Industry.

Anonymous Article published in *Food Packer* 30, No. 10, 29 (September, 1949).

A Seattle company, by means of its new blanching process of preparing oysters for canning, has increased consumer demand for its product which more than compensates for the greater cost. The company handles about 80% of the Pacific Coast pack in its cannery at South Bend, Washington. It takes its oysters from 16,000 acres of beds in that area, operates eleven opening plants and buys the output of twelve others.

Harvesting of the oysters is done by suction dredges which lift 20,000 gallons of water and muck per minute through two 20-inch pumps. The oysters fall onto a screen conveyor which carries them to the deck of the dredge. The shells were formerly opened by placing them under live steam until they opened and the meat could be lifted out.

This steam-opening method is much cheaper than the fresh-opening process, but it results in the loss of nectar, flavor and much of the food value. Because oysters are canned on a mass production basis, which makes hand-opening impossible, the company sought a method of opening them quickly while retaining all the advantages of the slower hand process.

In the blanching process the oysters are placed in a hot water bath for 30 to 60 seconds. The water is kept at 212° by live steam introduced through jets. This temperature is not hot enough to cook the oysters but is sufficient to open the shells. By this method the nectar loss is held to only 5 to 10 percent, the food value of the meat is retained and the flavor is fixed. Under the old method of opening the shells, the canned product had lost about 50 percent of its nectar.

The president of the firm states that this method has increased production costs by $1.12 per case of forty-eight 10-ounce cans over the former steam opening process, but that this greater cost has been more than made up by improved consumer demand.

After the oysters have been removed from the shell they are washed and graded, with the small, or sea, size set aside for fresh packing. The choice oysters are again graded as they go into the cans. Cooking is done at 240° with live steam under 10 pounds pressure for 30 minutes.

Commercial Fisheries Abstracts, January 1950.

Book Review

FOOD POISONING by G. M. Dack, Ph.D., M.D., Second Edition Revised. The University of Chicago Press. 1949. 184 pages. Price $3.75.

This small text, prepared by an authority in the field, has been generally recognized as one of the best and most complete treatises available on the subject of food poisoning and food infections. The popularity of the first edition made it mandatory that a second edition would be prepared which would include a digest of the experiences in this field during World War II. Accordingly it is up-to-date with references to the literature through 1948.

The book contains nine chapters and deals with chemical poisons in foods; poisonous plants and animals; botulism; staphylococcus food poisoning; the Salmonella group of organisms in relation to food-borne disease; Streptococcus fecalis food-borne infections; and other bacteria that have been suspected in food-borne outbreaks of disease. Included in this last group are E. coli, Proteus vulgaris, Proteus mirabilis, the Aerobacter group, the paracolon organisms and Clostridium welchii.

The final chapter deals with infections that are to be differentiated from food poisoning and includes the Shigella group of organisms, infectious hepatitis, amebic dysentery, trichinosis and epidemics of acute digestive upsets of virus or of unknown etiology. There is no discussion however of outbreaks of infant diarrhea in hospitals and their possible relationship to infected food, or of food-borne outbreaks of typhoid fever which have at times been very significant from a public health standpoint.

The text will undoubtedly be widely used by bacteriologists, by public health workers and by all who are professionally interested in the control and prevention of food-borne outbreaks of disease. It is a text that can be highly recommended for its basic information, for its sound and clear presentation of an important subject and for the numerous references to the scientific literature.

M. P. HORWOOD.

VITAMINOLOGY—THE CHEMISTRY AND FUNCTION OF THE VITAMINS, by Walter H. Eddy, Ph.D. Emeritus Professor of Physiological Chemistry, Columbia University. The Williams and Wilkins Company, Baltimore, Md. 1949. 365 pages. Price $6.00.

Many Food Technologists have a frequent or occa sional need for a reference to up-to-date literature concerning some aspect of our present knowledge of the vitamins. Here is such a book. However, one should be cautioned that this book does not present methods of vitamin assay and determination.

Dr. Eddy is not only a leading authority in the field of biochemistry but is also a veteran writer in his field. His book shows this in the clear organization of the broad subject of the chemistry and functions of all the known vitamins.

The book is replete with carefully selected references and is written more in the style of a literature review than is a text that is intended to be read from cover to cover.

The introductory chapter has a short treatment of "What is a Vitamin?" In this chapter the author states that the present bibliography of vitamin research has become so extensive in each vitamin field as to make impossible complete presentation of contributions or credit to contributors. The papers selected are primarily to lead the student to the problems and make no pretense to complete coverage of any field. I might add that much valuable reference material is included for one who wishes to find the chemical formulation of the vitamins, present concept of human requirements or the physiological functions. Dr. Eddy stresses what functions appear to be established, what have been suggested, and what remain for further investigation.

There are nineteen chapters and an excellent index which enhances the use of the book. Naturally, the better known and well established vitamins receive considerable detailed treatment in the text. Thus, a chapter each is devoted to vitamins A, D, E, and K.

Chapter 6 is a short one introducing the Water-Soluble Vitamins. This is followed by a chapter on each of the vitamins that come under this heading: Thiamine, Riboflavin, Pyridoxine, Niacin, Pantothenic Acid or Pantothen, Inositol, Para-amino-benzoic Acid or Paba, Biotin, Choline, Folic Acid or the Pteroylglutamates and Ascorbic Acid.

The latter chapter contains some brief mention of the use of Ascorbic Acid (Vitamin C) as an antioxidant to prevent color changes and off flavor in food products. Chapter 18 deals with the group classified as Vitamins P such as Citrin and Rutin. In the summary to this chapter the author states that to date there is no satisfactory evidence that vitamins P are dietary essentials for either man or animals although they may be of value as pharmacologicals in the treatment of capillary fragility.

The last chapter in this book is entitled "Some Other Postulated Vitamins" and deals briefly with the Animal Protein Factor (B_{12}), Lactation Factors L_1 and L_2, Summer Butter Factor, Vitamin B_{14}, Vitamin T. This chapter is only seven pages long. With the vast amount of progress being made by qualified workers in the field of human nutrition and with constant improvement of methods and technics, it is entirely possible that these lesser known and postulated vitamins will warrant greater coverage in the near future. That chance does not lessen the value of this book nor should it deter anyone from publishing a summary of present knowledge to be used as a tool and reference by so many in such a broad field. It is to Dr. Eddy's credit that he has been conservative enough to select reliable references, particularly for the postulated factors and lesser known vitamins.

ARTHUR S. LEVINE.

ROSE'S LABORATORY HANDBOOK FOR DIETETICS, Fifth Edition, Revised and Rewritten by Clara Mae Taylor and Grace MacLeod. The Macmillan Company, New York, 1949. 358 pages. Price $5.50.

Dietitians and all others faced with the problem of computing the food requirements of different individuals and of calculating the contributions which different foods make to the diet will welcome the new edition of this widely used handbook. The previous edition of 1937 has been ably revised and rewritten by Clara Mae Taylor and Grace MacLeod.

As in the earlier edition, many conversion tables are included, which are useful in all the types of calculations encountered in planning dietaries. Amounts of refuse present in a number of foods are given, and extensive tables are included as formerly giving nutritive values of foods in "shares."

Almost one hundred pages are devoted to tables giving the protein, fat, carbohydrate and calorie values in 100 grams, 1 ounce and 1 pound of a large number of foods. An additional fifty pages give similar information concerning the calcium, iron, vitamin A, thiamine, ascorbic acid, and riboflavin values of common foods. Further tables give amounts of other minerals (magnesium, potassium, sodium, phosphorus, chlorine, sulfur, and iodine) in foods.

Of special interest are tables giving the amounts of ten essential amino acids in single proteins, in mixed proteins and in foods, and tables giving niacin, biotin, pantothenic acid, para-aminobenzoic acid and pyridine contents of foods and vitamin D in fish liver oils and in foods.

Included also are tables giving the excess acid or base in 100 gram and 100 calorie portions of a variety of foods, and the oxalic acid content of certain foods.

The discussion of the functions of various nutrients has been brought up-to-date and a chapter has been added on vitamin losses in the cooking of foods.

JEAN I. SIMPSON.

NUTRITIONAL DATA, compiled by Harold A. Wooster, Jr. and Fred C. Blanck. H. J. Heinz Co., Pittsburgh, Pa. 1949. 114 pages. Distributed gratis.

This book supersedes "Nutritional Charts for Medical and Other Specialists," twelve editions of which have been published since 1934. It differs from its predecessor in format and arrangement as well as in content. Designed to serve as a handy reference on nutrients and their occurrence in foods, the book represents a compilation of data from a great many sources.

The value of such a work is to a large degree dependent upon arrangement of the material. An excellent job has been done in this respect. The subject matter has been placed under eleven main headings: vitamins, the essential elements, proteins and amino acids, the availability of nutrients, signs and symptoms of malnutrition, the metabolism and actions of foods, human nutritive requirements, planning diets for good nutrition, tables of food composition and nutritive value, nutritional activities of H. J. Heinz Co., and suggestions for further reading. Each of these sections is further divided and, in some cases, subdivided; for example, the section on vitamins includes discussions on interpretation of deficiency signs and symptoms, fat-soluble vitamins, water-soluble vitamins, vitamin units and vitamin assay methods. Each vitamin is described in terms of its structural formula, nomenclature, chemical and physical properties, positive functions, deficiency signs, and dietary sources. Other nutrients receive equally complete but concise treatment. Numerous literature citations serve not only to document the sources of data but also provide a guide to further reading on various subjects. The up-to-date nature of the information is indicated by many references to papers published in 1948 and 1949.

In the reviewer's opinion it is unfortunate that the sub-section on conservation of nutritive value of foods does not include a more complete discussion of the degree to which nutritive properties may be lost or retained during processing, storage, and preparation. A statement is made which implies that canned foods may be stored at high temperatures with little loss of vitamin content. Recent work has shown that this is not always true.

Data for the tables on food composition were obtained by averaging values from several sources which in turn represented averages of values taken from the original literature. For the sake of clarity, these single average values have been used rather than a range of values. The authors point out that the figures should be regarded as estimates of composition and not as exact values. Despite this warning, it is likely that some persons will attempt to read into the data a significance which does not exist. For example, when analyses of a food in both the fresh and canned state are given, it might be expected that any differences between them would reflect the effect of the canning process. However, in these tables there are examples where canned foods are shown to differ from their fresh counterparts in a manner which is likely caused by differences in sampling and analytical techniques as well as processing treatment.

Intended primarily for persons engaged in the field of nutrition, the book should be in the hands of all who exercise a degree of control over the nutritive value of our diets by formulating or improving food products and processes.

P. E. RAMSTAD.

BANANAS, by Harry W. von Loesecke. Published by Interscience Publishers, Inc., 215 Fourth Avenue, New York 3, New York. 1949. 189 pages, 5¾ x 8¾ inches. Cloth. Price $4.50.

This book is Volume I of the Economic Series, and represents a quite complete and comprehensive survey of the chemistry, physiology and technology of bananas. As a text, it would definitely be at the college level. Several chapters, however, should interest secondary schools as well as food people who deal with bananas as such as preparations containing the fruit.

The following chapter headings indicate the broad scope of the book:

1. History and Growth of the Trade
2. Structure and Development
3. Commercial Storage and Ripening Methods
4. Chemical Changes During Ripening (51 pages)
5. Transportation of Bananas
6. Banana Products

7. Nutritive Value in Health and Disease
8. Diseases and Insect Pests of Bananas
9. World Banana Production and Trade.

There are good author and subject indexes, and numerous photographs help much to enliven the text. This book will supply the basic researcher or technologist with a broad, well-annotated coverage on bananas.

A. A. SCHAAL.

OUTLINES OF BIOCHEMISTRY, by Ross Aiken Gortner. Third Edition, edited by Ross Aiken Gortner, Jr. and Willis Alway Gortner. John Wiley and Sons, Inc., New York. Chapman and Hall, Limited, London. 1949. 1078 pages. Price $7.50.

This well known textbook on biochemistry by Ross Aiken Gortner, late chief of the Division of Agricultural Biochemistry at the University of Minnesota, has been revised by ten authors most of whom were colleagues or former students of Dr. Gortner. The revision has been edited by Dr. Gortner's sons, Ross Aiken Gortner, Jr., Professor of Biochemistry, Wesleyan University, and Willis Alway Gortner, Head, Department of Chemistry, Pineapple Research Institute, Honolulu, who have also revised certain chapters in the book.

Although this new edition has been thoroughly revised and brought up to date the general outline of the book has been retained. New chapters have been added on Protein Denaturation, Carbohydrate Metabolism and Lipid Metabolism. The book is divided into six sections.

The first section on Colloids has been revised by Henry B. Bull and David R. Briggs. It has been condensed and shortened by 74 pages. The chapter on Osmotic Pressure and Electrical Conductivity has been omitted. Besides considering the colloidal state many phases of biophysical chemistry are covered in this section, such as hydrogen-ion concentration, oxidation-reduction, electro-kinetic phenomena and the Gibbs-Donnan equilibrium.

The second section on Proteins has been revised by W. M. Sandstrom and Ross A. Gortner, Jr. The former has revised the chapters on the general aspects of protein chemistry and the latter the chapters on Protein Metabolism, Biological Reactions of Proteins and Nitrogen Bases. A new chapter on Protein Denaturation by Henry B. Bull has been added. The chapter on Protein Metabolism has been enlarged and includes much of the new work with isotopes.

The third section on Carbohydrates and Related Compounds has been revised by several authors. William F. Geddes has revised the chapters on the chemistry of the carbohydrates, glucosides and saponins. Paul D. Boyer has contributed a new chapter on Carbohydrate Metabolism. J. J. Willaman has revised his chapter on Pectic Substances. The chapter on Lignin and the Tannins has been revised by Samuel I. Aronovsky.

The fourth section on Lipids and the Essential Oils has been revised by Willis A. Gortner. A new chapter on Lipid Metabolism has been added to this section.

The fifth section on Plant Pigments has been revised by George O. Burr.

The sixth section on Biochemical Regulators includes chapters on Vitamins, Hormones and Enzymes. The chapter on Vitamins was revised by Willis A. Gortner, that on Hormones by Ross A. Gortner, Jr. and the one on Enzymes by W. M. Sandstrom.

From the above outline of the book it is obvious that most of the important phases of biochemistry are covered. The text is thoroughly documented with numerous references which should be useful to those wishing to investigate subjects in more detail. The sections on Colloids, Proteins, and Carbohydrates and Related Compounds are sufficiently comprehensive to serve as texts for courses in these subjects at the graduate level.

In the present edition more emphasis has been placed on metabolism which will be welcomed by medical biochemists. Although the book contains much of interest to the medical biochemist, it should be noted that many subjects emphasized in courses for medical students are mentioned only briefly or are omitted. The reviewer has in mind such subjects as foods and nutrition, mineral metabolism, calorimetry, antibiotics, blood and urine.

The reviewer was impressed with the general appearance of the book. The publishers should be complimented on an excellent job of printing. The editors and authors should also be complimented for the scarcity of errors which so often accompany the first printing of a book. Of the few errors found, might be mentioned the omission of an H atom in the formula for D-Galactonolactone on page 539. In discussing Willaman and Morrow's diagram showing the configurational relationships of the aldose sugars on page 530, line 10 should read "secondary" instead of "primary" alcohol group. On page 403 the formula for chondroitin sulfuric acid differs from those found in other books. It would appear that the author has altered the original formula to conform to modern concepts of carbohydrate structure.

The most serious errors of fact which the reviewer has found appear on page 803 and have been carried over from the previous edition. The definitions for the Reichert-Meissl and Polenske numbers are incorrect. The former should read "volatile-soluble" instead of "volatile" acids. The latter should read "volatile-insoluble" instead of "non-volatile" fatty acids.

This book is a real contribution to the science of biochemistry and should find wide use as a text for advanced courses in the subject. It should also prove a very useful source of information for any worker in chemical and biological fields.

ARTHUR K. ANDERSON.

OUTLINES OF FOOD TECHNOLOGY, by Harry W. von Loesecke (Second edition). Reinhold Publishing Corporation, New York, 1949. 540 pages. Price $7.50.

This is a very comprehensive book of 15 chapters. Separate chapters cover fruits and their products, preservation of vegetables, dairy products, meat and meat products, fish and shellfish, grains and their products, nuts, beverages, confectionery products, and spices. Other chapters are devoted to more general subjects as sugars and starches, edible fats and oils, storage and marketing, containers, and preservation by freezing.

This is a book to be studied rather than to be read lightly. Its numerous divisions and subdivisions with footnote references slows the reader to a pace that the contents can be easily digested. It is fairly heavy reading and each chapter begins with an appetizer of verse, philosophy and history, which leads immediately into the subject at hand. By the time the reader has refreshed a few technical phrases, scanned some tables and diagrams, and reached the end of the chapter, he is ready for a pause before entering the next chapter. The book is so written that any chapter is a complete unit within itself, and may be studied without regard to earlier or later chapters. Even the numbering of the text references, of which there are 549, begins anew with each chapter. Besides the text references, there are a total of 278 unnumbered suggested reading references. These readings under the respective subjects are listed at the end of the chapters.

Perhaps nowhere are the difficulties of writing a text book on food technology better illustrated than in the chapter on preservation of foods by freezing. The writer admits that due to conflicting thought on this subject it is nearly impossible to present this aspect of the subject in a satisfactory manner. He devotes 23 pages to the entire subject of freezing, transportation and utilization of frozen foods, then suggests that the reader continue by reading 98 references.

This book is a good text for courses where the entire field of food technology is to be covered within a fairly short time.

J. G. Woodroof.

VEGETABLE AND FRUIT PROCESSORS SCHOOL
THE OHIO STATE UNIVERSITY
MARCH 13-17, INCL.

The third Vegetable and Fruit Processors School, scheduled for the Ohio State University, March 13-17 inclusive, is arranged so those especially interested in only one or two crops can come for the day or days when the crop or crops in which they are interested are being considered. For example, corn and peas will be featured on Monday, March 13; tomatoes and tomato products on Tuesday, March 14; snap beans, kraut, pickles, fruit and specialty products including wine on Thursday, March 16; and sanitation and nutritional aspects of processed foods on Friday, March 17.

Great interest has been manifested in a field trip to Cincinnati. Some canners have never been in a can manufacturing plant, and many have expressed an interest in seeing a modern food research laboratory. We have, therefore, arranged for a field trip on Wednesday, March 15. During this trip the group will visit the Continental Can Company at Norwood, the Kroger Food Foundation Laboratories in Cincinnati and one other laboratory (probably the Food and Drug laboratories.)

The group will travel by bus. The cost of the trip (approximately $5.00) will depend somewhat upon the number that register for the trip.

The three evening programs have been developed around research work in the Department. The first, March 13, is based on taste panel work using representative samples treated with the newer organic pesticides and samples prepared with mono-sodium glutamate. On March 14 two movies will be shown of processing and quality analysis of tomatoes and tomato products, processed under the Research and Marketing Act of the U. S. Department of Agriculture. These movies (one talkie) depict the research project of greatest interest to canners.

On March 16 fruit processing possibilities in Ohio will be discussed. Samples of fruit juice blends, concentrates and frozen fruit will be evaluated.

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